

## REMARKS

After entry of this Response, claims 1 – 15 are pending in the application. None of the claims have been amended or canceled. No new claims have been added. Reconsideration of the application is requested.

In the Office Action dated February 22, 2005, claim 9 stands objected to for improper use of markings to show newly added material to the Reissue application. Pursuant to M.P.E.P. 1453, since none of the claims have been amended by this response, the claims do not include markings.

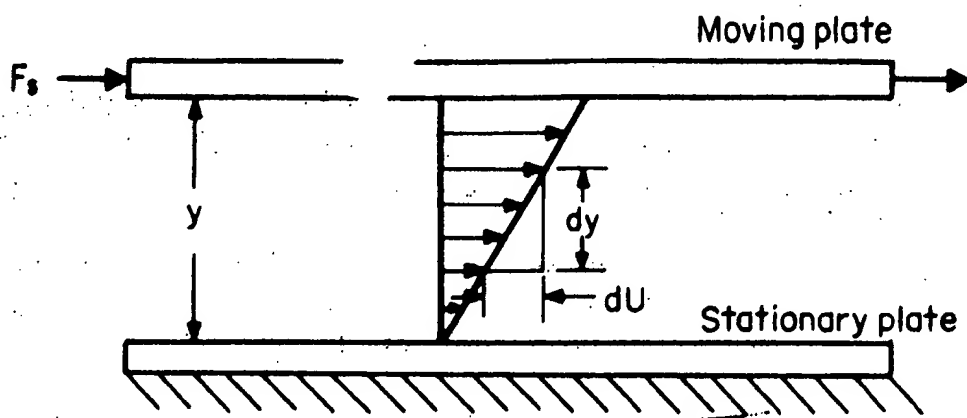
The reissue oath/declaration has been found defective. The Examiner states that the previously filed reissue oath/declaration fails to contain a statement that all errors which are being corrected in the application arose without any deceptive intent on the part of the Applicant. A Supplemental Declaration, form PTO/SB/51S, is submitted with this Response to correct the reissue oath/declaration.

Claims 1 – 15 stand rejected as being unpatentable over Shaw et al., U.S. Pat. No. 3,498,290, in view of Sainz et al., U.S. Pat. No. 4,540,946. Applicant respectfully traverses the rejection. To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. M.P.E.P. § 2143.03. Furthermore, all words in a claim must be considered in judging the patentability of that claim against the prior art. M.P.E.P. § 2143.03, citing *In re Wilson*, 424 F.2d 1382, 1385.

The claims of the application recite a fluid surface. For example, claim 1 recites generating a microwave frequency electrical signal adapted to reflect from said *fluid surface* using a means to generate said electrical signal; spacing the means to generate said electrical signal from said *fluid surface*; directing said signal along a line toward the *fluid surface* and opposite the predetermined direction and at an angle of between 30 and 40 degrees to said *fluid surface*; detecting the signal reflected from the *fluid surface*; and determining from the directed and reflected signal the Doppler frequency shift therebetween as a measure of the velocity of the *fluid surface* (emphasis added). The

term surface is defined as “the outer face, outside, or exterior boundary of a thing.”<sup>1</sup> The surface of fluid is defined, in part, by properties such as fluid tension and capillary action.<sup>2</sup>

It is submitted that neither Shaw et al., nor Sainz et al., teach or suggest the invention as recited in claim 1. Shaw discloses an “ultrasonic volumetric blood flowmeter which measures volumetric blood flow in the undisturbed vessel of a patient.”<sup>3</sup> It is respectfully submitted that blood traveling in a blood vessel does not define a fluid surface from which a signal could be reflected to measure a velocity. A fluid surface is not an arbitrary plane selected in the interior of a quantity of fluid. At best, the interface between the interior surface of the blood vessel and the blood flowing in the blood vessel may be characterized as a boundary (not a surface); however, the velocity of blood adjacent the interior surface of the blood vessel is zero based on well-known laws of fluid mechanics. In particular, wherein fluid fills an enclosed cavity and is moving through the enclosed cavity, the portion of fluid adjacent to the stationary surface defining the enclosed cavity will be stationary, best shown by the figure below<sup>4</sup>:



**Fig. 3.3.1** Flow of a substance between parallel plates.

The stationary plate is the equivalent of the wall of a blood vessel. Sainz et al. does not overcome the deficiencies of Shaw et al. In particular, Shaw et al. discloses “that ultrasound is transmitted . . . to

<sup>1</sup> Random House Webster’s Unabridged Dictionary 1914 (2d ed. 1997).

<sup>2</sup> EUGENE A. AVALLONE & THEODORE BAUMEISTER III, MARK’S STANDARD HANDBOOK FOR MECHANICAL ENGINEERS § 3.3, page 3-38 (9<sup>th</sup> ed. 1987).

<sup>3</sup> U.S. Pat. No. 3,498,290, column 2, lines 11 – 14.

<sup>4</sup> MARK’S HANDBOOK, pages 3-34 and 3-35.

insonate the whole of a blood vessel[.]”<sup>5</sup> It is therefore submitted that neither Shaw et al., nor Sainz et al., taken singularly or in any permissible combination, teach or suggest the invention recited in claim 1. It is further submitted that claim 1 patentably defines over the references and is in suitable condition for allowance. Similarly, claims 8, 9 and 13 recite a fluid surface are also in suitable condition for allowance.

Claim 2 depends from claim 1 and is therefore also patentable. In addition, claim 2 further defines over the references. Applicant’s attorney has reviewed the references and submits that neither Shaw et al., nor Sainz et al., taken singularly or in any permissible combination, teach or suggest the directed signal forming a pattern on the fluid surface of an oval shape. If this rejection is maintained, Applicant’s attorney requests that the Examiner specifically identify the basis for the rejection by column and line number of the Shaw et al. and Sainz et al. patents. In rejecting claims for want of novelty or for obviousness, the Examiner must cite the best references at his or her command. When a reference is complex or shows or describes inventions other than that claimed by the applicant, the particular part relied on must be designated as nearly as practicable. The pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified. M.P.E.P. § 706, 37 C.F.R. 1.104.

Claim 3 depends from claim 1 and is therefore also patentable. In addition, claim 3 further defines over the references. As set forth in greater detail above, both Shaw et al., and Sainz et al. disclose flowmeters for blood vessel and, as a result, a directed signal would not have an unobstructed cone-shaped view of a fluid surface. If this rejection is maintained, Applicant’s attorney requests that the Examiner specifically identify the basis for the rejection by column and line number of the Shaw et al. and Sainz et al. patents. After indicating that the rejection is under **35 U.S.C. 103**, the Examiner should set forth in the Office action . . . the relevant teachings of the prior art relied upon, preferably with reference to the relevant column or page number(s) and line number(s) where appropriate. M.P.E.P. § 706.02(j).

Claim 4 depends from claim 1 and is therefore also patentable. In addition, claim 4 further defines over the references. Applicant’s attorney has reviewed the references and submits that neither Shaw et al., nor Sainz et al., taken singularly or in any permissible combination, teach or suggest spacing is generally between 18 and 48 inches. If this rejection is maintained, Applicant’s attorney requests that the Examiner specifically identify the basis for the rejection by

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<sup>5</sup> U.S. Pat. No. 4,540,946, column 2, lines 20 – 23.

column and line number of the Shaw et al. and Sainz et al. patents. Alternatively, if this rejection is maintained, Applicant's attorney requests that the Examiner specifically identify a prior art reference that supports the Examiner's conclusory assertion that "particular spacing between the signal generating means and the fluid . . . are matters of mere obvious design choice[.]"<sup>6</sup> The issue of "Design choice" can apply when (1) all the elements of the claim are taught by the prior art except with regard to the relative positions of the elements and (2) the rearrangement of the elements recited in the claim will not modify the operation of the device. M.P.E.P. § 2144.04(VI)(C), *In re Japikse*, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950). However, "design choice" is not a label to be applied in order to justify a rejection where the prior art is lacking. To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. M.P.E.P. § 2143.03.

Claim 5 depends from claim 1 and is therefore also patentable. In addition, claim 5 further defines over the references. Applicant's attorney has reviewed the references and submits that neither Shaw et al., nor Sainz et al., taken singularly or in any permissible combination, teach or suggest measuring the depth of the fluid in the channel or flume or determining from the velocity of the fluid surface and the depth of the fluid in the channel or flume, the flow rate of the fluid. If this rejection is maintained, Applicant's attorney requests that the Examiner specifically identify the basis for the rejection by column and line number of the Shaw et al. and Sainz et al. patents. It is important for an examiner to properly communicate the basis for a rejection so that the issues can be identified early and the applicant can be given fair opportunity to reply. M.P.E.P. § 706.02(j).

Claim 6 depends from claim 1 and is therefore also patentable. In addition, claim 6 further defines over the references. Applicant's attorney has reviewed the references and submits that neither Shaw et al., nor Sainz et al., taken singularly or in any permissible combination, teach or suggest a depth measurement that is ultrasonically obtained. Applicant's attorney has reviewed the references and submits that neither Shaw et al., nor Sainz et al., taken singularly or in any permissible combination, teach or suggest ultrasonically measuring depth. If this rejection is maintained, Applicant's attorney requests that the Examiner specifically identify the basis for the rejection by column and line number of the Shaw et al. and Sainz et al. patents.

Claim 10 depends from claim 9 and is therefore also patentable. In addition, claim 10 further defines over the references. Applicant's attorney has reviewed the references and submits that

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<sup>6</sup> Office Action dated February 22, 2005, page 4, lines 9 – 11.

neither Shaw et al., nor Sainz et al., taken singularly or in any permissible combination, teach or suggest directing the signal opposite the predetermined direction of the fluid surface. If this rejection is maintained, Applicant's attorney requests that the Examiner specifically identify the basis for the rejection by column and line number of the Shaw et al. and Sainz et al. patents.

Claim 11 depends from claim 9 and is therefore also patentable. In addition, claim 11 further defines over the references. Applicant's attorney has reviewed the references and submits that neither Shaw et al., nor Sainz et al., taken singularly or in any permissible combination, teach or suggest directing the signal at an angle of between 30 and 40 degrees to the fluid surface. If this rejection is maintained, Applicant's attorney requests that the Examiner specifically identify the basis for the rejection by column and line number of the Shaw et al. and Sainz et al. patents.

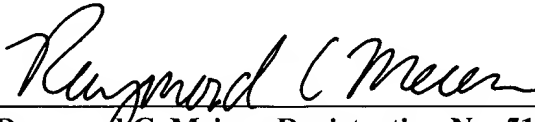
Claim 14 depends from claim 13 and is therefore also patentable. In addition, claim 14 further defines over the references. Applicant's attorney has reviewed the references and submits that neither Shaw et al., nor Sainz et al., taken singularly or in any permissible combination, teach or suggest measuring the depth by determining the difference between a predetermined distance between a depth measuring signal source to a bottom of said channel and a distance measured from said depth measuring signal source to said liquid surface. If this rejection is maintained, Applicant's attorney requests that the Examiner specifically identify the basis for the rejection by column and line number of the Shaw et al. and Sainz et al. patents.

If the Examiner believes that prosecution of the application can be expedited by way of an Examiner's amendment, the Examiner is invited to contact the Applicant's attorney at the telephone number listed below.

**Respectfully submitted,**

**HOWARD & HOWARD ATTORNEYS**

July 20, 2005  
Date

  
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